

REMARKS/ARGUMENTS

The claims are 2, 3, 6-15, 17-26, 28-30, 32 and 34. Claims 15 and 30 have been amended to better define the invention and to improve their form, claims 32 and 34 have been amended in view of the amendments to claims 15 and 30, respectively, and claim 10 has been amended to depend on claim 2. Support for the claims may be found, *inter alia*, in the disclosure in the second full paragraph on page 8, the paragraph bridging pages 9-10, and the paragraphs bridging pages 10-11. Reconsideration is expressly requested.

All claims were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite due to informalities in independent claims 15 and 30 set forth on page 2 of the Office Action. In response, Applicant has amended claims 15 and 30, *inter alia*, to improve their form. It is respectfully submitted that all currently pending claims fully comply with 35 U.S.C. § 112, second paragraph, and Applicant respectfully requests that the rejection on this basis be withdrawn.

Claims 2-3, 6-15, 17-21, 23-24, and 28-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Jank et al.*

U.S. Patent No. 6,476,354 in view of Hsu U.S. Patent No. 6,717,107 and further in view of Huismann et al. The remaining claims were all rejected under 35 U.S.C. § 103(a) as being unpatentable over Jank et al. in view of Hsu and Huismann et al., but the Examiner also relied on one respective additional prior art reference to reject each of the remaining claims. Specifically, the Examiner additionally relied on Tanaka et al. U.S. Patent No. 4,100,389 to reject claims 22 and 25, on Norrish et al. U.S. Patent Application Publication No. 2002/0008095 to reject claim 26, and on Ueyama et al. U.S. Patent No. 5,508,493 to reject claims 32 and 34, in addition to relying on Jank et al. in view of Hsu and Huismann et al.

In response, Applicant has amended claims 15 and 30, *inter alia*, to better define the invention and respectfully traverses the Examiner's rejection for the following reasons.

Claims 15 and 30 have been amended to specify that the change from the welding process phase having a lower energy input to a welding process phase having a higher energy input (and vice versa) is done during or after a short circuit or during a base current phase (reference number 35), during which the welding current I is lowered to a base value 36. Such a controlled

transition from one welding process phase to the other welding process phase is important to avoid the occurrence of welding spatter and an impairment of the welding quality.

The basis for such an amendment can be found in the following passages of the specification:
the second full paragraph on page 8:

" . . . enables the cold-metal-transfer phase 28 to be performed in the base current phase 35 of the pulse current phase, which means that the welding current I is lowered after the droplet detachment by the pulse current phase 27 and merges into the base current phase 35, after which the cold-metal-transfer phase 28 will then be carried out in the base current phase 35, whereupon a transition into the pulse current phase 27 will again take place.";

the paragraph bridging pages 9-10:

"Subsequently, the cold-metal-transfer phase 28 is initiated after the expiration of a preadjustable period of cold-metal-transfer phase 28, the base current phase 35 is preferably further maintained over a pregiven period of time, whereupon a pulse current phase 27 is again initiated and a cyclic repetition of

the two welding process phases is performed.”;
and the paragraphs bridging pages 10-11:
“After three consecutive phases 27 and base current phases 35,
the cold-metal-transfer phase 28 is started at time 39 and the
welding current I is increased by a limited extent.”

As the Examiner has recognized, the primary reference to *Jank et al.* fails to disclose or suggest a method or device wherein the second welding process has a short circuit phase that starts during the base energy phase. Although the Examiner has taken the position that *Hsu* discloses this feature, it is respectfully submitted that *Hsu* neither discloses nor suggests a method or a device wherein a change from the second welding process phase having the low energy input to the first welding process phase having the high energy input or a change from the first welding process phase having the high energy input to the second welding process phase having the low energy input is done during or after a short circuit or during the base current phase, during which the welding current is lowered to a base value as recited in Applicant's claims 15 and 30 as amended.

The same is true of the further secondary reference to *Huisman et al.*

The remaining references to *Tanaka et al.*, *Norrish et al.*,

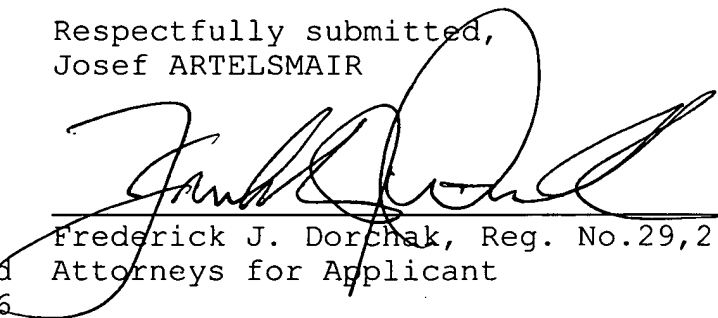
and Ueyama et al. have been considered but are believed to be no more relevant. There is no disclosure nor suggestion in any of these references of a welding device or method for controlling or adjusting a welding process where the change from the second welding process phase having the low energy input to the first welding process phase having the high energy input or the change from the first welding process phase having the high energy input to the second welding process phase having the low energy input is done during or after a short circuit or during the base current phase, during which the welding current is lowered to a base value as recited in Applicant's claims 15 and 30 as amended.

Accordingly, it is respectfully submitted that claims 15 and 30 as amended, together with claims 2-3, 6-14 and 34 which depend on claim 30 as amended and claims 17-26, 28-29 and 32 which depend directly or indirectly on claim 15 as amended, are patentable over the cited references.

In summary, claims 10, 15, 30, 32, and 34 have been amended.
In view of the foregoing, it is respectfully requested that the
claims be allowed and that this application be passed to issue.


Respectfully submitted,
Josef ARTELSMAIR

COLLARD & ROE, P.C.
1077 Northern Boulevard
Roslyn, New York 11576
(516) 365-9802


Frederick J. Dorchak, Reg. No. 29,298
Attorneys for Applicant

FJD:bjs

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Kelly Espitia